In regard to paragraphs 2I)-L), the applicant does not agree with the Examiner's requirement as the features indicated in these paragraphs are not "blank boxes" but are structural or functional. Official drawing requirements, as set forth in 37 CFR 1.83 and 1.84, do not require the labeling of such features.

In regard to paragraph 3A), reference numeral 35 is indicated in paragraph [0068], line 2 of the Description as filed. In regard to paragraph 3B), reference numeral 101 and 105 are indicated in paragraph [0035], line 2, of the Description as filed.

Claims 1 to 7 are rejected under 35 USC 102(b) as being anticipated by Hair, Jr. et al, US 3,983,715. Claim 9 is rejected under 35 USC 103(a) as being unpatentable over Hair, Jr. et al in view of Goscenski, Jr., US 4,179,888. Claims 10-15 are rejected as being unpatentable under 35 USC 103(a) in view of Dietz, US 5,484,850. Claim 8 is objected to but would be allowable if rewritten in independent form.

Claims 1, 2, 3, 8, 9, 10, 11, 12, 13, 14, and 15 are canceled; claims 4 and 5 are amended; claims 6 and 7 remain as filed; and new claims 16 to 26 are added. Independent claims 4 and 22 each now recited the features of claim 8 and the features discussed in the telephone interview of 11/14/2002. Accordingly, claims 4, 5, 6, 7, and 16 to 26 are believed allowable and Notice thereof is requested.

The application as amended would now appear in condition for allowance and Notice thereof is requested.

The citation to Kan, publication US2002/0135370 A1, is objected to notwithstanding the Examiner's observations. The mere listing of any document on PTO-892 or documents that appears on the title page of the patent is suggestive that the document is in the state of the art. Kan is a publication of the present application and cannot be in the state of the art. The Examiner's observations that Kan is indicated "only for purposes of a complete record" and "is not prior art" is disingenuous.

Respectfully submitted,

KAN

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Paragraphs [0002], [0016], [0017], [0018], [0048], [0056], [0057], [0059], [0074], [0079], and [0088] as amended to indicate the amendment:

[0002] In a magnetic resonance imaging device, the subject for imaging is positioned [loaded] into an inner space of the magnet system, or in other words into an image capture space formed of a static magnetic field, a gradient magnetic field and a high frequency magnetic field applied to generate a magnetic resonance signal within the imaging subject, and a cross sectional image is generated (reconstructed) based on that received signal.

[0016] Therefore, the embodiments [embodiment] of the invention provides a highly efficient air feed device, as well as means for signal acquisition and means for imaging comprising the means for air feed.

[0017] The present invention will be apparent from the following description of the preferred embodiments of the invention as illustrated in the accompanying drawings [.] in which;

[0018] FIG. 1 is a block diagram showing a magnetic resonance imaging [systems] system;

[0048] FIG. 2 and FIG. 3 show an external view of the subject 31 waiting in the magnet system 11. FIG. 2 is a perspective view and FIG. 3 is a side view showing a portion in cross section. As shown in these same figures, the magnet system 11 is supported by four support pillars 13 installed on the floor surface [FL] 50.

[0056] The rotation of the water wheel is conveyed to the rotating vanes 71 by way of the gear box 73. The gears within the gear box 73 can be shifted to allow adjusting the rotational speed of the rotating vanes 71. Providing an internal clutch for turning the gears on and off allows intermittently conveying the motive force from the fluid [liquid] motor 75 to the rotating vanes 71.

[0057] The control unit 161 is control the shifting of gears and turning [the] a clutch on and off. Needless to say, this control may be performed manually. The gear box 73 may be omitted when there is no need to adjust the rotational speed of the rotating vanes 71.

[0059] In means for air feed the fluid motor 75 uses no electricity, no magnetic signals are generated and which may interfere with the magnetic resonance signal might not occur. Also, the gear box 73, the fluid motor 75 and the rotating vanes 71 are made of a nonmetallic and nonmagnetic material such as plastic or ceramics so that the operation of these components does not disturb the electrical environment of the magnet system 11.

[0074] After spin inversion, the spin is rephased by the readout gradient Gr, and the spin echo MR generated. The spin echo MR is an RF signal having a waveform symmetrical to the center echo. The center echo occurs at a point in time after TE (echo time) from the 90 degree excitation. The spin echo MR is collected as view data by the data acquisition unit 151. A pulse sequence of this kind is repeated 64 to 512 times at the periodic TR (repetition time). The phase encode gradient [GP] Gp is changed each time the pulse sequence is repeated, and different phase encoding performed each time. View data for views 64 to 512 are acquired in this way.

[0079] The gradient echo MR is collected as view data by the data acquisition unit 151. A pulse sequence of this kind is repeated 64 to 512 times at a period TR (repetition time). The phase encode gradient [GP] Gp is changed each time the pulse sequence is repeated, and different phase encoding performed each time. View data for views 64 to 512 are obtained in this way.

[0088] The above imaging device was described for this invention with a magnetic resonance imaging device however the imaging device of this invention is not limited to use in a magnetic resonance imaging device and may utilize a signal acquisition device having a space to hold the imaging subject such as PET (positron emission tomography, gamma cameras (γ camera), X-ray [CT(Computed] CT (computed tomography) and other types of imaging devices may also be utilized.

Clean copy of paragraphs [0002], [0016], [0017], [0018], [0048], [0056], [0057], [0059], [0074], [0079], and [0088] as amended:

B1

[0002] In a magnetic resonance imaging device, the subject for imaging is positioned into an inner space of the magnet system, or in other words into an image capture space formed of a static magnetic field, a gradient magnetic field and a high frequency magnetic field applied to generate a magnetic resonance signal within the imaging subject, and a cross sectional image is generated (reconstructed) based on that received signal.

[0016] Therefore, the embodiments of the invention provides a highly efficient air feed device, as well as means for signal acquisition and means for imaging comprising the means for air feed.

B2

[0017] The present invention will be apparent from the following description of the preferred embodiments of the invention as illustrated in the accompanying drawings in which;

[0018] FIG. 1 is a block diagram showing a magnetic resonance imaging system;

B3

[0048] FIG. 2 and FIG. 3 show an external view of the subject 31 waiting in the magnet system 11. FIG. 2 is a perspective view and FIG. 3 is a side view showing a portion in cross section. As shown in these same figures, the magnet system 11 is supported by four support pillars 13 installed on the floor surface 50.

B4

[0056] The rotation of the water wheel is conveyed to the rotating vanes 71 by way of the gear box 73. The gears within the gear box 73 can be shifted to allow adjusting the rotational speed of the rotating vanes 71. Providing an internal clutch for turning the gears on and off allows intermittently conveying the motive force from the fluid motor 75 to the rotating vanes 71.

B4 cancel

[0057] The control unit 161 is control the shifting of gears and turning a clutch on and off. Needless to say, this control may be performed manually. The gear box 73 may be omitted when there is no need to adjust the rotational speed of the rotating vanes 71.

B5

[0059] In means for air feed the fluid motor 75 uses no electricity, no magnetic signals are generated and which may interfere with the magnetic resonance signal might not occur. Also, the gear box 73, the fluid motor 75 and the rotating vanes 71 are made of a nonmetallic and nonmagnetic material such as plastic or ceramics so that the operation of these components does not disturb the electrical environment of the magnet system 11.

B6

[0074] After spin inversion, the spin is rephased by the readout gradient Gr, and the spin echo MR generated. The spin echo MR is an RF signal having a waveform symmetrical to the center echo. The center echo occurs at a point in time after TE (echo time) from the 90 degree excitation. The spin echo MR is collected as view data by the data acquisition unit 151. A pulse sequence of this kind is repeated 64 to 512 times at the periodic TR (repetition time). The phase encode gradient Gp is changed each time the pulse sequence is repeated, and different phase encoding performed each time. View data for views 64 to 512 are acquired in this way.

B7

[0079] The gradient echo MR is collected as view data by the data acquisition unit 151. A pulse sequence of this kind is repeated 64 to 512 times at a period TR (repetition time). The phase encode gradient Gp is changed each time the pulse sequence is repeated, and different phase encoding performed each time. View data for views 64 to 512 are obtained in this way.

B8

[0088] The above imaging device was described for this invention with a magnetic resonance imaging device however the imaging device of this invention is not limited to use in a magnetic resonance imaging device and may utilize a signal acquisition device having a space to hold the imaging subject such as PET (positron emission tomography, gamma cameras (γ camera), X-ray CT (computed tomography) and other types of imaging devices may also be utilized.

Claims 4 and 5 as amended to indicate the amendment:

4. A magnetic resonance imaging [signal acquisition] device comprising:

means for signal acquisition that acquires a magnetic resonance signal [including a space accommodating a subject for imaging];

a space accommodating a subject for imaging;

a fluid motor rotating by fluid flow and disposed adjacent to the space; and

rotating vanes driven by the fluid motor and forcing air into the space [.] , wherein the fluid motor and the rotating vanes do not cause electrical interference with the device.

5. The device of claim 4 comprising:

means for adjustment [means] for adjusting fluid flow quantity supplied to the fluid motor.

Clean copy of claims 4 and 5 as amended:

4. A magnetic resonance imaging device comprising:

means for signal acquisition that acquires a magnetic resonance signal;

a space accommodating a subject for imaging;

a fluid motor rotating by fluid flow and disposed adjacent to the space; and

B9

rotating vanes driven by the fluid motor and forcing air into the space, wherein the fluid motor and the rotating vanes do not cause electrical interference with the device.

5. The device of claim 4 comprising:

means for adjustment for adjusting fluid flow quantity supplied to the fluid motor.

Add new claims 16, 17, 18, 19, 20, 21, 22, 23, 24, 25 and 26 as follows:

16. The device according to claim 4 wherein the rotating vanes are disposed above the subject.

17. The device according to claim 4 comprising:

means for supporting the subject in the space; and

means for adjusting a position of the means for support.

B10

18. The device according to claim 4 comprising:

means for positioning the subject in the space in a substantially vertical position.

19. The device according to claim 4 comprising:

means for positioning the subject in the space in a substantially horizontal position.

20. The device according to claim 18 wherein the rotating vanes are aligned substantially vertically with the subject.

21. The device according to claim 18 wherein the rotating vanes are aligned substantially horizontally with the subject.

22. A magnetic resonance imaging system comprising:

a magnet system having a space for positioning a subject therein;

means for acquiring a magnetic resonance signal;

means for providing a flow of air into the space, the means being made from a non-magnetic or non-metallic material to avoid interference with the magnet system or the means for acquiring a magnetic resonance signal; and

means for adjusting the position of the subject in the magnet system.

23. The system according to claim 22 wherein the means for providing a flow of air comprises:

rotating vanes; and

means for rotating the vanes by fluid flow.

B10 cancel

24. The system according to claim 23 wherein the magnet system has a vertical bore.

25. The system according to claim 23 wherein the magnet system has a horizontal bore.

26. The system according to claim 23 wherein rotating vanes are adjacent to one end of the magnet system

Abstract as amended to indicate the amendment:

AIR FEED DEVICE, SIGNAL ACQUISITION DEVICE AND IMAGING DEVICE

ABSTRACT OF THE DISCLOSURE

An air feed device comprises a fluid motor to drive rotating vanes and blow air with high efficiency into a space accommodating a [sub] subject in a magnetic resonance device. The air feed device does not cause electrical interference with the magnetic imaging device.

Clean copy of the Abstract as amended:

AIR FEED DEVICE, SIGNAL ACQUISITION DEVICE AND IMAGING DEVICE

ABSTRACT OF THE DISCLOSURE

An air feed device comprises a fluid motor to drive rotating vanes and blow air with high efficiency into a space accommodating a subject in a magnetic resonance device. The air feed device does not cause electrical interference with the magnetic imaging device.